Keeler Spectra Plus

Instructions

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Introduction

Thank you for purchasing the Keeler Spectra Plus Indirect Ophthalmoscope.

We have taken the greatest care in the design, development and manufacture of this product to ensure that you get many years of trouble free service. However, it is important that you read the descriptions, installation and operating instructions carefully prior to installing or using your new indirect ophthalmoscope.

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As part of our policy for continued product development we reserve the right to amend specifications at any time without prior notice.

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Symbols

Read user instructions for Warnings, Cautions and additional information.

CE

The CE mark on this product indicates it has been tested to and conforms with the provisions noted within the 93/42/EEC Medical Device Directive.

Double insulated.

Type B protection against shock.

Warnings and Cautions

Warning

- Do not use if the product is damaged and periodically inspect for signs of damage.
- Do not use in the presence of flammable gases.
- This product should not be immersed in fluids.
- Do not fit mains power adapter into a damaged mains outlet socket.
- Route power cords safely to eliminate risk of tripping or damage to user.
- Do not disassemble or modify the battery. There are no serviceable parts inside.
- Do not dispose of battery in fire, puncture or short circuit.
- Do not use a battery that is deformed, leaking corroded or visually damaged. Handle a damaged or leaking battery with care. If you come into contact with electrolyte, wash exposed area with soap and water. If it contacts the eye, seek medical attention immediately. There are no user-serviceable parts inside the device. Contact authorised Service representative for further information.
- Federal law restricts this device to sale by or order of a physician.

Caution

- The product has been designed to function safely when at an ambient temperature between +10°C and +35°C.
- Use only Keeler charger supplied.
- Use correct Keeler power supply.
- Dispose of battery in line with local regulations on recycling batteries.
- Keep out of the reach of children.
- To prevent condensation from forming, allow instrument to come to room temperature before use.
- When replacing lithium battery pack, turn indirect off and attach new pack.

Setting up and using the Spectra Plus

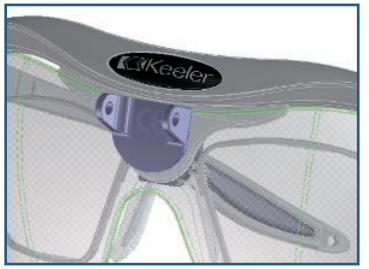
Description of the Product

A Frame
B Filter Selector
C Mirror Angle
D Hinge
E Interpupillary Distance Control
F Mounting Holes

Setting up and using the Spectra Plus

Frame (A)

1. Fit the Spectra Plus head unit to the frame (A) via the pin mounting system as shown.



Protective shield in correct position

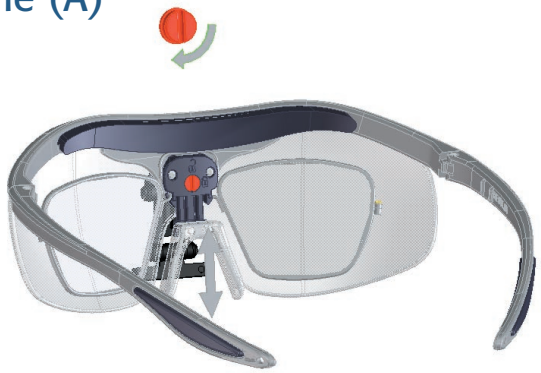
2. The protective shield is fitted by pushing the shield into position as shown.

Prescription Lens Frame in correct position

3. The Prescription Lens Frame is fitted if required as shown.

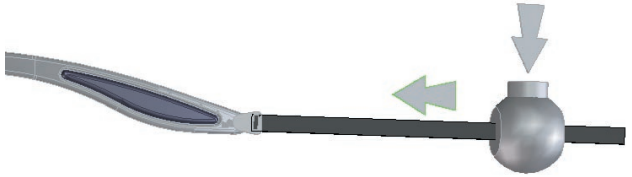
Setting up and using the Spectra Plus

Frame (A)



4. To adjust the Nose Bridge, turn the locking cam to a position as shown above to release the Nose Bridge. The Nose Bridge can then be slid to the required position.

5. Lock the Nose Bridge in position by turning the locking cam to a position as shown above.



6. To securely fit the frame to the users head, slid the toggle indicated to a comfortable position.

Setting up and using the Spectra Plus

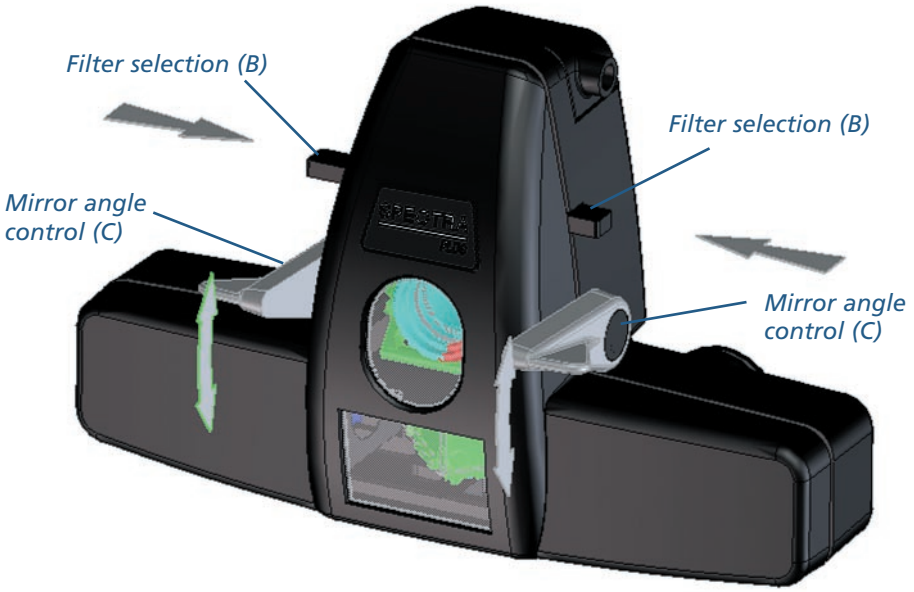
Filter selection control (B)

By sliding the lever (B) in direction of arrows, different filters may be selected.

Clear – Select the clear with no filter when inspecting a specific pathology and a brighter, whiter light is desired.

Green – Red-free filter reduces the red light, so blood will appear black, silhouetted against a dark background.

Blue – Cobalt blue for fluorescein angioscopy.



Mirror angle control (C)

The light is positioned vertically into the field of view by rotation of the levers (C) located either side of the binocular block.

Setting up and using the Spectra Plus

Interpupillary Distance Setting Control (E)

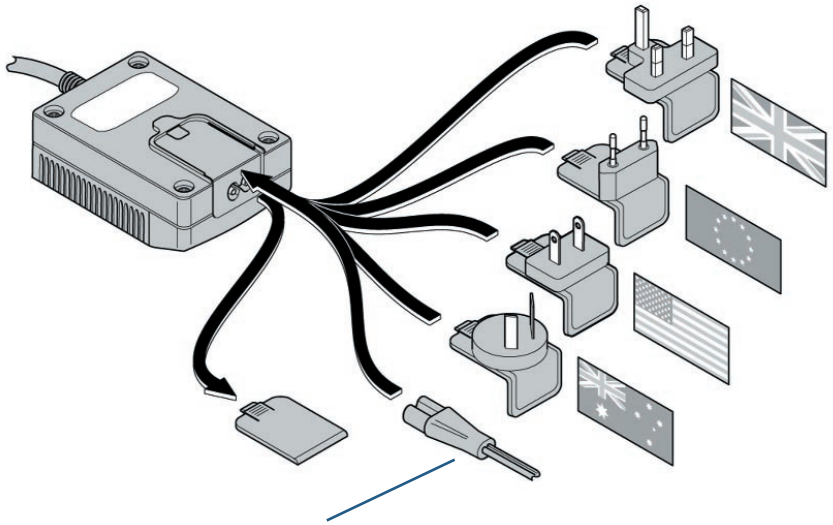
Because the eyes are dissociated, particular care must be taken to ensure the optics (eyepieces) are set properly in front of each eye.

Place an object, perhaps the thumb, approximately 40cm from the face and centre it horizontally in the light patch. Then, close one eye. Using the thumb and forefinger of the opposite hand, slide the P.D.Control (E) of the open eye (located directly under each eyepiece) so that your object moves into the centre of the field, keeping the object in the centre of the light patch. Repeat for the other eye.

Power Supplies - Lithium Battery

Set Plug

Replace the blanking plate with the appropriate mains plug adapter if required, or use IEC 60320 TYPE 7 connector (not supplied).



IEC 60320 TYPE 7 connector

Power Supplies - Lithium Battery

Charging the battery pack

Connect plug on cable to power input socket on side of Charger.

Turn the battery pack off. The Green LED shows Charging storage unit is powered.

Place the battery pack into the charging well as shown below.
A yellow LED indicates battery pack's charge state as below:

Green LED	Charging storage unit powered
No yellow LED	Battery charged
Flashing yellow LED	Top-up charge
Solid yellow LED	Rapid charge

The battery pack can be used at any time during the charging cycle and will resume charging when battery pack is placed back in the charger.

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Power Supplies - Lithium Battery

Charge time

The battery will take approximately 3 hours to fully charge.
The battery will last approximately 4 hours on full power.

Turn the illumination on by rotating the dimmer control knob in an anti-clockwise direction.

A yellow LED indicates battery pack's charge state as below:

Flashing yellow LED Battery requires charging

Insert connector into socket as shown.

Belt Clip

The belt clip can be used for those who prefer to carry the unit on a belt.

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Accessories

3412-P-7002	Spectra Plus Carrying Case
EP39-33907	Lithium Battery
1201-P-6067	Large Thimble Depressor for Scleral Indentation
1201-P-6075	Small Thimble Depressor for Scleral Indentation

Contact Keeler who can supply a choice of Volk Lenses depending on magnification and field of view.

Cleaning Instructions

Only manual non-immersion cleaning as described should be used for this instrument. Do not autoclave or immerse in cleaning fluids. Always disconnect power supply from source before cleaning.

a Wipe the external surface with a clean absorbent, non-shedding cloth dampened with a water / detergent solution (2% detergent by volume) or water / isopropyl alcohol solution (70% IPA by volume). Avoid optical surfaces.

b Ensure that excess solution does not enter the instrument. Use caution to ensure cloth is not saturated with solution.

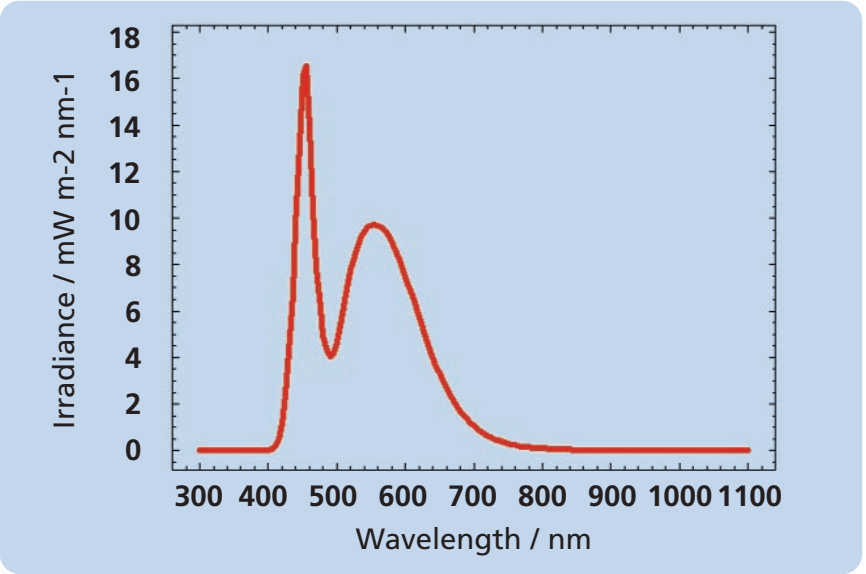
c Surfaces must be carefully hand-dried using a clean non-shedding cloth.

d Safely dispose of used cleaning materials.

Technical Information

It is well established that exposure of the eye to intense light sources for extended periods of time poses a risk of retinal photic injury. Many ophthalmic instruments illuminate the eye with intense light. The decision about the intensity of the light level to use in any procedure must be made on a case to case basis. In each case, the clinician must take a risk benefit judgement about the intensity of light to be used. Use of insufficient intensity may result in inadequate visualization and in adverse effects more serious than retinal photic damage. Further, despite all efforts taken to minimise the risk of retinal damage, damage may still occur. Retinal photic injury is a possible complication of the need to use bright light to clearly visualize ocular structure during delicate ophthalmic surgical procedure.

While no visible retinal lesions have been identified for ophthalmic instruments, it is recommended that illumination levels be set to the minimum level necessary to perform the diagnostic function. Young children and persons with diseased eyes may be at a higher risk. The risk may also be increased if the person being examined has had any exposure with the same instrument or any other ophthalmic instrument using an intense visible light source during the previous 24 hours. This will apply particularly if the eye has been exposed to retinal photography.



Spectral irradiance of Spectra Plus indirect ophthalmoscope at user plane.

Technical Information

Photochemical source radiance	(mW cm^{-2} sr^{-1})
Aphakic, L_A (305-700nm)	3.26
Phakic, L_B (380-700nm)	3.21

Calculated photochemical source radiances

Operating temperature:		+10°C to +35°C
Transportation temperature:		- 40°C to +70°C.10% to 95% RH
Input mains data:		100-240V – 50/60Hz
Power supply rating:		12V : 2.5amps
Operation:		Continuous
Classification:		Class II equipment
		Type B protection against shock
Standards, tested to:	IEC 60601-1	Electrical safety
	IEC 60601-1-2	EMC
	ISO 9022-2:1994	Optics and optical equipment- Environmental test methods - Cold, heat and humidity.
	ISO 9022-3:1994	Optics and optical equipment - Mechanical stress.
	EN ISO 15004-1:2006	Ophthalmic Instruments - Fundamental Requirements.

Warranty and Service Information

Your Keeler Instrument is guaranteed for 3 years and will be replaced or repaired free of charge subject to the following:

1 Any fault that is due to faulty manufacture.
2 The instrument has been used in compliance with these instructions.
3 Proof of purchase accompanies any claim.

Please note that batteries are covered by this warranty statement for I year only.

No user serviceable parts. All preventative maintenance and servicing must be carried out by an authorised Keeler representative.

Contact Information

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As part of our policy of continued product improvement we reserve the right to alter and/ or amend specifications at any time without prior notice.

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